



Uheldsmodeller på DTU Transport - nu og fremover

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Publication date:
2011

Document Version
Publisher's PDF, also known as Version of record

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Citation (APA):
Hels, T. (Invited author). (2011). Uheldsmodeller på DTU Transport - nu og fremover. Sound/Visual production (digital)

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***Workshop om uheldsmodeller
Trafitec
29. november 2011***



Uheldsmodeller på DTU Transport – nu og fremover

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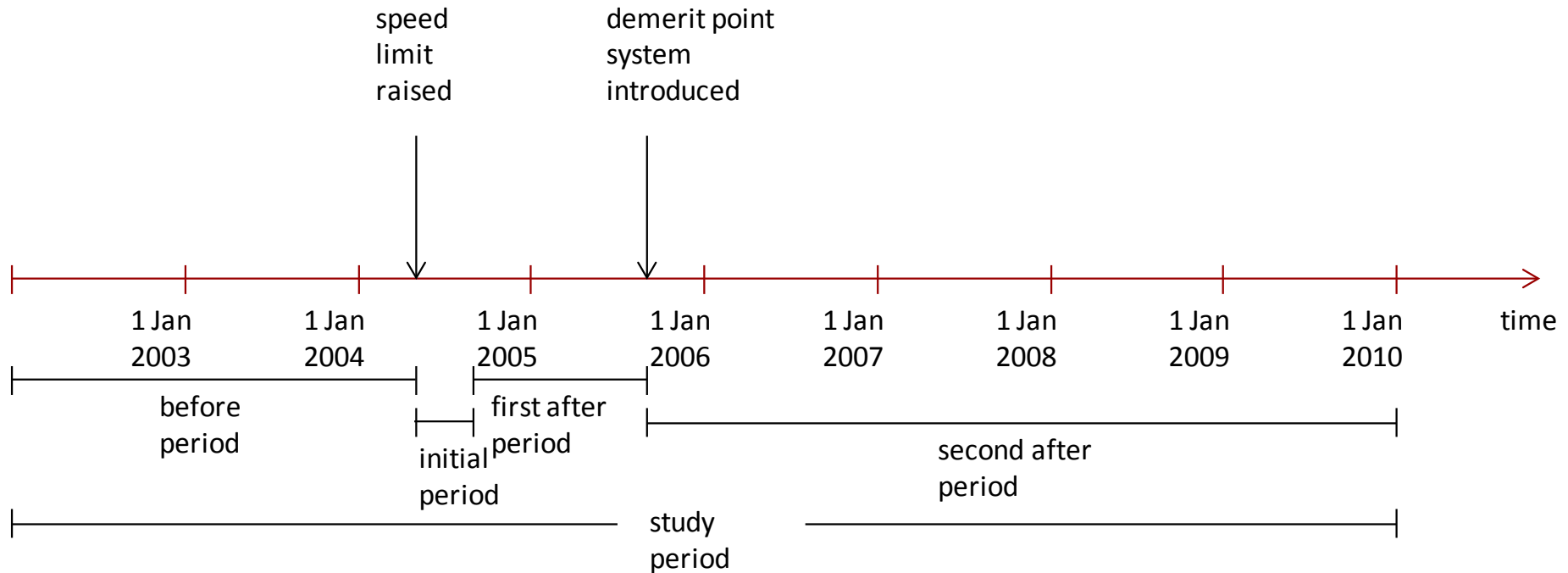
Emner

- 'Deskriptiv' modellering
- Modellering af hastighed og uheld
- Disaggregeret modellering, trafikanten i centrum
- Vejtypemodellering, vejtypen i centrum
- Tidsseriemodellering, det aggregerede antal uheld pr. tidsenhed er i centrum



'Deskriptiv' modellering

130 km/t på motorvejene



'Deskriptiv' modellering

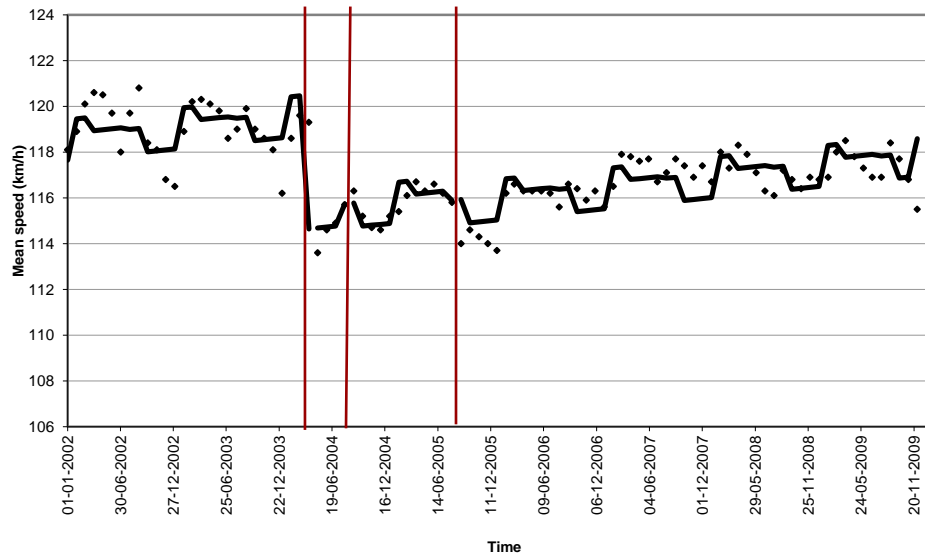
| Model | Variable | Value | Estimate | Significance |
|----------------------|----------------------------------|-------------------|----------|--|
| Y: mean speed (km/h) | intercept | | 111.84 | P<0.0001 |
| X: | road type | 110-road: | 5.72 | P<0.0001 |
| | | 130-road: | 6.70 | |
| | | Cph-road: | ref. | |
| | month | | 0.04 | P<0.0001 |
| | season | winter: | ref. | P<0.0001 |
| | | spring: | 1.76 | |
| | | summer: | 1.16 | |
| | | autumn: | 1.05 | |
| | period + (road type * period) | 110 road before: | ref. | P<0.0001 (period) P<0.0001 (road type* period) |
| | | 110 road initial: | -5.27 | |
| | | 110 road after 1: | -4.23 | |
| | | 110 road after 2: | -4.56 | |
| | | 130 road before: | ref. | |
| | | 130 road initial: | -1.19 | |
| | | 130 road after 1: | -0.45 | |
| | | 130 road after 2: | -0.35 | |
| | | Cph road before: | ref. | |
| | | Cph road initial: | -4.37 | |
| | | Cph road after 1: | -3.54 | |
| | | Cph road after 2: | -4.52 | |

F-value= 545.56, R-square= 0.97, N=275.

Deskriptiv modellering

Hastighedsudvikling på

110 motorveje

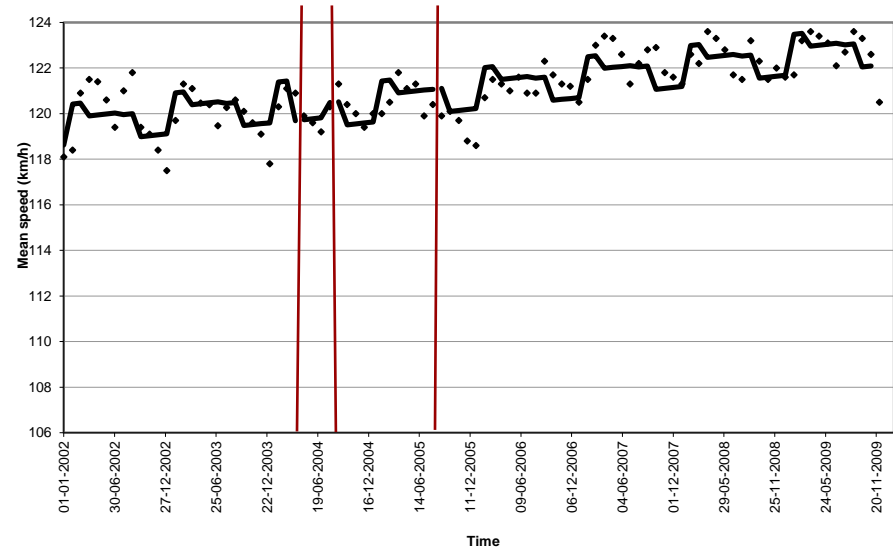


før

initial efter1

efter2

130 motorveje



før

initial efter1

efter2

log(number of personal injuries, light and severe)

▲ 110 km/h
■ 130 km/h
— Linear trend (110 km/h)

$y = 14.568x - 67.27$

log(mean speed, km/h)

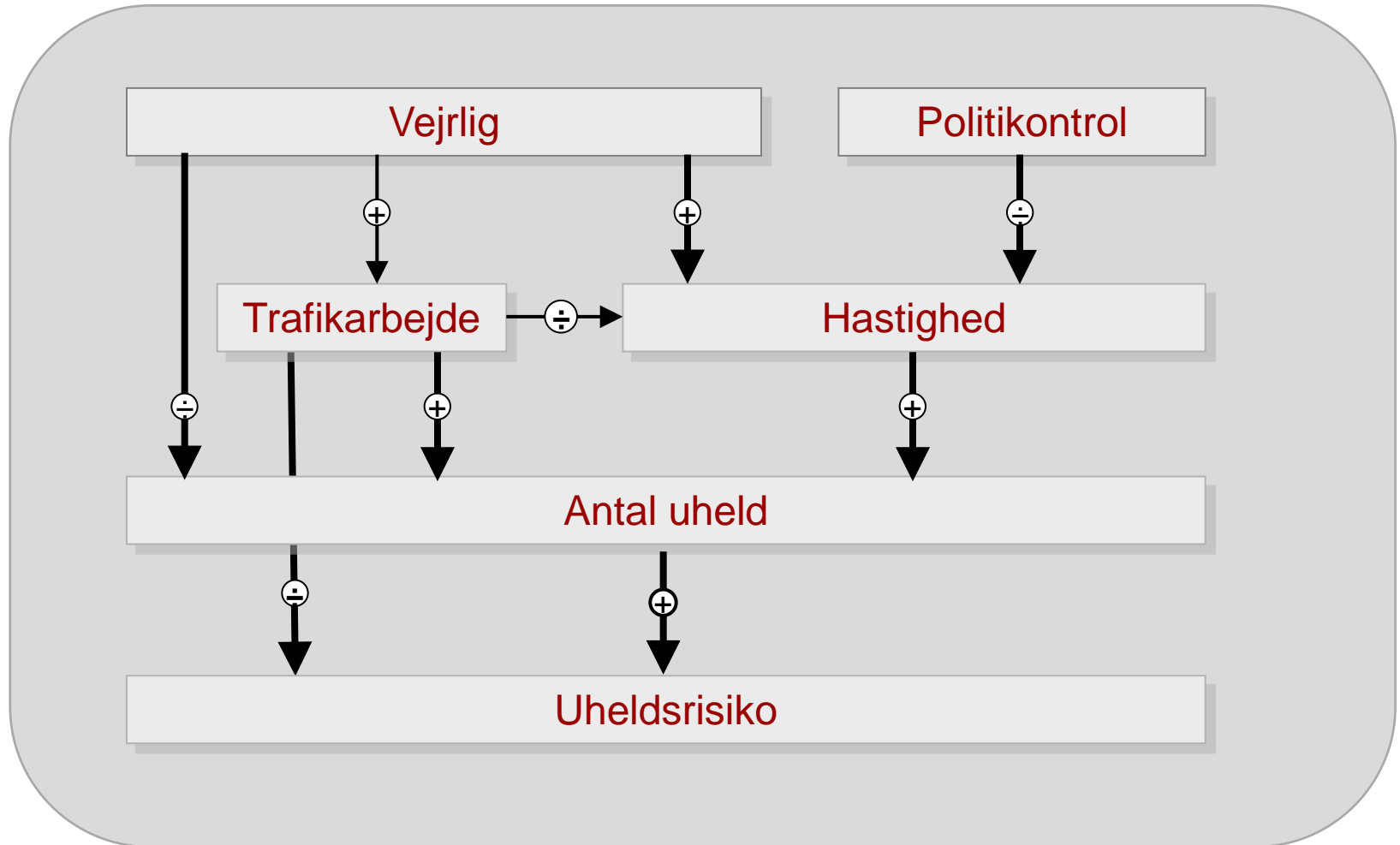
Hastighed-uheld modellering

Potensmodellen

$$\frac{uheld_{efter}}{uheld_{før}} = \left(\frac{hastighed_{efter}}{hastighed_{før}} \right)^x$$

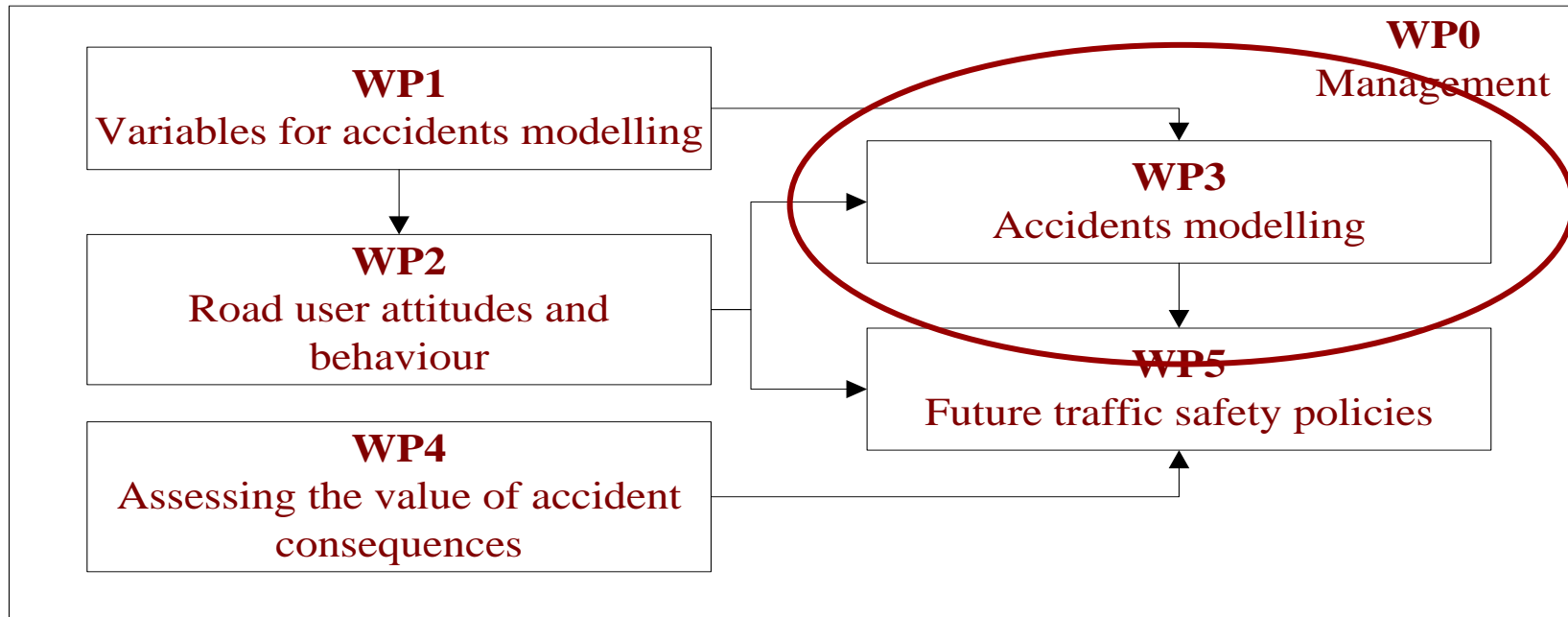
| Road type | Variables | Exponent in the power model | | |
|---------------|------------|-----------------------------|----------------------------------|-------------------------------|
| | | Exponent from Elvik (2009) | Exponent without a control group | Exponent with a control group |
| 130 motorways | PIA-1 | 1.6 | -31.2 | -71.5 |
| | PIA-2 | | 28.0 | -79.3 |
| | Injuries-1 | 2.2 | -15.7 | -61.2 |
| | Injuries-2 | | 32.9 | -83.3 |
| 110 motorways | PIA-1 | 1.6 | 10.5 | 6.2 |
| | PIA-2 | | 10.2 | 2.4 |
| | Injuries-1 | 2.2 | 18.1 | 6.7 |
| | Injuries-2 | | -1.5 | 5.9 |

Hastighed-uheld modellering



Uheldsmodellering

IMPROSA



Uheldsmodellering

IMPROSA

- Disaggregeret modellering, trafikanten i centrum
- Vejtypemodellering, vejtypen i centrum
- Aggregeret modellering (tidsserier), det aggregerede antal uheld pr. tidsenhed er i centrum



Uheldsmodellering unikke data

- **Uheldsdata**

- politiregistrerede uheld
- skadestuedata - Odense
- Landpatientregistret

- **Transportvaneundersøgelsen - eksponeringsdata**

- **Socioøkonomiske og demografiske data på individniveau (Danmarks Statistik)**

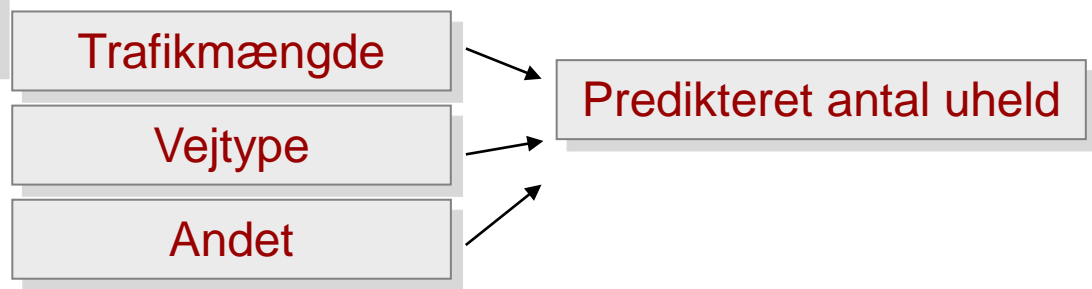


Uheldsmodellering

Disaggregeret modellering

- Eksponerings- og risikotendenser som funktion af individuelle variable:
- trafikantadfærd (acceptans af risiko, hastighedsvalg, biltypevalg, etc.)
 - trafikantens alder, erfaring, uddannelse, etc.

Vejtypemodellering



Aggregeret modellering

- Eksponerings- og risikotendenser som funktion af samfundstendenser:
- brændstofpriser, BNP, billetpriser til kollektiv trafik,...
 - længde og kvalitet af vejnettet
 - større ændringer i lovgivning og politikontrol



Tak for opmærksomheden...

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